

FORMAT PUBLIC PRIVATE PARTNERSHIP

DECEMBER 2006

Introduction:

The partnership has to draft a PPP-Plan following the enclosed format including the annexes. The draft Plan has to be discussed with all partners and will be commented upon by DGIS. The final Plan has to be submitted to DGIS for formal approval.

The format for the PPP plan follows a logical framework (goals, results, activities, and means) and measures impact through indicators (which have to be Specific, Measurable, Achievable, Realistic and Time-bound).

DGIS' internal assessment of the final Plan:

After submission DGIS will assess the final Plan. Attention will especially be paid to the described poverty situation, the goal of PPP, the expected results, the activities and the means to do so. The internal assessment will include an assessment of the PPP-organization and will look at relevance, effectiveness, and efficiency:

PPP organization : whether the PPP is a partnership (chapter 1 and 3 of the plan)

Relevance : the criteria as described in the call (chapter 1)

Effectiveness : the contribution to poverty reduction and sustainable development (chapter 2)

Efficiency : implementation, planning and budget (chapter 4 and 5)

Monitoring:

During implementation the PPP will be monitored at regular intervals assessing the PPP organization, its relevance, effectiveness, and efficiency.

Some specific information:

- please submit 2 hardcopies of the PPP-Plan and 1 digital copy (MS Word format)
- with a maximum of 20 pages main text with letter size 11, Times Roman
- in English
- using the same headings as the format
- without a hard binder

1. Background of the Public-Private Partnership

Description of what the partnership entails based on the criteria (as described in the 'call for ideas'), the idea description submitted earlier and the consultation process.

1.1 Common goal and objectives of the partners

The overall goal of the project is to implement a PPP-based program that will make the Indonesian tea sector more competitive by increasing the efficiency and quality of their supply chain, by encouraging sustainable agricultural practices among smallholder farmers and estate managers, and by enhancing the knowledge among supply chain partners about the importance of the social, economical, agronomic and environmental conditions under which the tea is being grown, cultivated, processed and traded.

Specific objectives of the project:

- Improving annual income on tea farms and estates by enabling production of product that meets the requirements of customers and consumers in the main markets for Indonesian tea.
- Contribute to an environmentally sustainable tea industry in Indonesia.
- Train tea producers associations (co-operatives) to provide better services to their members
- Assist parastatal and private tea estates to provide better services to surrounding producers associations
- Strengthen Farmer Organisations

1.2 Background of the PPP and the concerted action of the partnership *(problem analysis, the PPP criteria, why a partnership is needed to address the identified constraints or opportunities, interests of the partners)*

Agriculture has played an important role in Indonesia's economic success. However, over the last 25 years, the share of agriculture in the GDP has declined from 41.9% in 1969 to 17.2% in 1995. During the same period, the agricultural sector grew by 3.45% per annum. The value of agricultural exports in 1994/1995 was US\$5,941 million, 18.7% of the total non-oil exports. Rubber, palm oil, coffee, tea, cocoa, and shrimp were the major agricultural export commodities.

A worrying fact is that the decline in employment in the agricultural sector has been much slower than the decline in its share of the GDP. The proportion of agricultural workers in the total work force fell from 54.7% in 1985 to 52.5 in 1990, and an estimated 46% in 1995. At the same time, the absolute number of agricultural workers has been continuously increasing. In 1995, approximately 38 million people were employed in agriculture. This indicates that the sector remains a major economic activity for employment generation, although one with low labour productivity. Meanwhile, the proportion of workers in the manufacturing sector (the sector with the highest GDP growth rate) rose only slightly, from 8.5% in 1985 to 10.8% in 1990. (The remainder of the work force is employed in mining, trade, services etc.). All this evidence suggests the critical importance of promoting labour-intensive agricultural and non-agricultural employment, in order to minimise unemployment problems and to further reduce poverty in both rural and urban areas. Tea cultivation is one example of a labour intensive sub-sector in the Indonesian economy. Presently it provides employment for an estimated 200,000 families. As the average Indonesian family size amounts to 5 persons, the tea sector therefore provides a livelihood for around one million persons.

The majority of Indonesian tea, is sold via auctions held every Wednesday in Jakarta. This is the only tea auction in the world that is not conducted in English.

Tea Fact File	
Tea production	167,000 tonnes
Tea types	Green and Black
Percentage exported	66%
World production ranking	6
Tea first grown	1700s

Tea and income generation for smallholders

The bulk of Indonesian tea comes from the island of Java. Picking is typically done manually, with the main growing area to the west of the island around Bandung. Tea is picked all year round in Indonesia, but the best quality comes during the dry season of August and September. The large majority of pickers are females.

Tea estates are either privately owned or government run companies that are called PTPN's (Perseroan Terbatas Perkebunan Nusantara), each of which has a number of tea estates and factories under its control. Private tea estates can be divided again into commercial estates and smallholder estates. Indonesian tea estates cover about 150,000 ha. Thirty percent is under the management of the parastatal enterprises (PTPN's), 26% is under private commercial management while up to 44% of the land used for tea production is cultivated by smallholders.

Smallholder tea cultivation is facing constraints because of low prices, due to low world market prices and the relative poor quality of tea produced by smallholders. This has been further aggravated by a lack of investments in recent years and relative low priority of tea on the research agenda. Since smallholders are shifting to alternative crops generating more income, the cultivated area is decreasing. In general smallholders cultivating tea are relatively poor and tea-growing areas score low on health and nutritional indicators. Nevertheless, tea producing smallholders still represent the biggest group in area of tea cultivated compared to private and Government owned estates. Yet, they are the lowest in yield. The last five consecutive years of relative over-supply in the global market have brought the price to its lowest historical level. Many smallholder tea farmers are close to becoming non-viable. Some have closed down their tea gardens and switched to other crops because of lack of capital, technologies and economies of scale. Others neglect their tea lots, do not replant dead bushes and leave the land bare. The smallholder plots are usually scattered in the surrounding areas of the bigger tea estates and mostly on slopes of mountains. The lack of motivation to invest in tea cultivation by a significant number of smallholders causes an increasing number of eroding land lots between otherwise well covered maintain slopes. Similar problems caused by declining tea prices are affecting parastatal and commercial estates. Little investment has been made in recent years in developing better yielding planting material, management practices and product that meets customer expectations.

In the past, there have been Indonesian Government initiatives to empower the smallholders by having the big estates share their technology, marketing, and capital in assisting them to alleviate some of their problems. The World Bank funded most of these programs. However, once the funds were depleted, the programs were then abandoned. The PTPNs were supposed

to be agents for the development of smallholders, but PTPN's are expected to be commercially viable and assisting the smallholder industry in managing its affairs effectively is incompatible with meeting profitable sales targets required of the PTPN.

Additionally, the stringent quality requirements of the PTPN's key customer base and the expense and difficulty of implementing the required standards with smallholder leaf suppliers has led the PTPN's to increasingly move towards ownership and control of their own green leaf production at the expense of smallholder suppliers.

Below is a compilation from relevant data sources

- Total Number of Smallholders in Indonesia - +/- 120,000
- Smallholders in West Java (most important area) - +/- 84,000
- Most Smallholders, for historical and processing reasons focus on green tea. Small scale. Farm Sizes are quite small & broadly fit into 4 categories – (1) 25-50 Ha and have a mini factory, (2) More than 5 Ha, (3) 1 to 5 Ha, (4) up to 1Ha. The smallholders in categories (2)-(4), supply green leaf to other processors.
- Data is not too easy to access, but the following table provides some estimates based on interviews and secondary sources.
Approximate Smallholder income from tea per year:

Over 25 Ha + mini factory	US\$ 13,000
Over 5 Ha	US\$ 1,500
1 to 5 Ha	US\$ 450
Below 1 Ha	US\$ 120

Problems

Global oversupply of tea has led to ever declining global prices, in US\$. Government subsidies, and above all international development funds, provided to grow more tea in many countries, continue to be a major contributory factor. Much of this development funded new production in areas that are commercially marginal and might not survive without support. Much of the volume from many of these regions is of lower quality, has considerable environmental impact and is often subject to less-than-ideal ethical practices. The industry tendency is still to produce “what they can”, rather than “what the market/customers need or value”. Indonesia has many natural advantages, but because of current low profitability, high dependency on the smallholder segment, poor access to customers (past the PTPNs and the current auction selling system), poor understanding of the customer requirements/rationale in the developed countries, there tends to be in-built reluctance by farmers to invest and change.

On the other hand, tea is an ideal smallholder crop due to its equal labour requirements during the year and relatively low level of input needs. However, land and labour productivity needs to be increased and product quality improved. This can be realised through linking smallholders to an efficient tea chain, which focuses on ecological and economical sustainability aspects. Smallholder tea estates cover the largest area but are the lowest productivity. For example, the average black tea yield on the government estates is 2,100

kg/ha/year (made tea) while the average yield on smallholder estates is only between 700 and 900 kg/ha/year. This is in sharp contrast with the productivity of Kenyan smallholders who manage to reach productivity levels as high as 2500 kg/ha/year.

The problem of low productivity on the smallholder level is caused by a number of factors (factors valid for estate companies are followed by (+)):

- Small lots at dispersed locations
- Lack of knowledge about better management practices (+)
- Long distance to processing facilities
- Low quality of tea production because of lack of incentive for high quality tea (+)
- High cost of transportation
- Long supply chain because of local middlemen/ traders involvement
- Lack of access to inputs
- Lack of access to short term credit
- Little knowledge of the market and weak bargaining position vis-à-vis middlemen
- Because of low selling prices and high cost of inputs farmers do not maintain their estates according to best management practices (+)

The key question is how these constraints can be overcome in order for the average smallholder to increase the productivity of their tea lot and increase their income derived from tea. One logical strategy is to revive producers associations. Many of these exist on paper (so-called tea “co-operatives”) but are dormant as these were formed by a top-down process rather than a bottom-up process. Thus, presently, most Indonesian smallholders do not benefit from being organized, notably the advantages of (a) sharing knowledge about sustainable tea cultivation, (b) obtaining up-to-date market information, and (c) acting as a coordinated seller on the market place.

Tea and the environment

Tea cultivation is essential for sustainable ecological functions of watersheds in West Java. Improving the economic sustainability of smallholder tea production is necessary to maintain a substantial portion of the land under tea cultivation. After natural forest, tea provides the best alternative to maintain ecological watershed services due to almost complete ground cover, the high organic matter content of soil and deep rooting, resulting into controlled water recharge and minimal soil erosion. Increase in other intensified land uses such as vegetable production and floriculture in West Java, Indonesia; have made major downstream metropolitan areas such as Jakarta and Bandung more vulnerable to flooding while simultaneously water recharge has declined causing water shortages even during normal dry seasons. Recent events underline the seriousness of the situation; the 2002 Jakarta flood caused displacement of 340,000 people. A moderate dry season caused in 2003, the failure of around 100,000 ha in West Java alone (mostly in the Indramaju and Karawang districts). The importance of watershed protection of the areas currently under tea is significant. For instance a protected area, the Gunung Gede Pangrango National Park, is surrounded by tea gardens. The monetary value of environmental services alone has been estimated at € 4 million annually.

Despite these positive aspects, the cultivation and processing activities of tea should be assessed separately from an environmental point of view. As tea is an appropriate crop for growing upland and on slopes, it is cultivated on highly erodable soils and its cultivation has an impact on downstream communities. The removal of fertile topsoil as a result of erosion is one cause of land degradation. The other causes are depletion of soil nutrients, damage to

physical and chemical properties of the soil, and the reduction in soil capacity to retain moisture. The loss of nutrients and the reduction in moisture retention capacity are associated with the loss of productive potential of soils. It has been difficult to establish a relationship between land degradation because of soil erosion and productivity for perennial crops, such as tea, as a result of the lack of data on past soil characteristics (e.g., depth and nutrient content). There is also a lack of time series data on other independent factors that influence crop yields. Furthermore, a drop in crop productivity and crop yields because of soil erosion and land degradation is an integrated response to several interacting factors such as soil fertility, prevalent climate, incidence of disease and pests, cultural practices, degree of past erosion and associated land degradation, and the current rate of erosion and land degradation.

Recent work carried out on land degradation and productivity in the case of rubber, and ongoing work on tea, shows that the reduction in yields of perennial crops as a result of land degradation is significantly smaller than in the case of annual crops. One of the negative impacts of low productivity in smallholders' tea production is the resulting move from tea cultivation to growing annual crops on sloping land that is prone to erosion or to leave land bare, i.e. not replanting tea nor any alternative perennial crop.

On tea estates, notably the parastatal PTPNs there are indications that more chemicals are being used than is desirable or profitable. Managers are reluctant to decrease the procurement of inputs as it may influence future budget allocations. One strategy to counter this problem is the development of several significant portions of the estates where the project can demonstrate the beneficial impact

Institutional Aspects

Indonesia has two Apex organizations that could play an important role in the promotion and improvement of the Indonesian tea sector. The Indonesian Tea Association (ATI) is an important trade association where producers and processors are organized. ATI has not historically been effective in stimulating its membership to improve their efficiencies. Nevertheless the ATI is an excellent platform from where relevant information regarding sustainable agricultural practices can be made available.

Another relevant organization is the Smallholder Tea producers Association (APTEHINDO). It has a dynamic president but only very limited interaction with its members. Unlike the ATI, APTEHINDO focuses specifically on the smallholder tea producers. Presently it is not able to reach its members because of both a lack of resources and also a lack of a well-defined set of services the members can expect.

Concerted Action:

Increasingly there is awareness about the essential role of private investment for the development of the Third World. Rural development agencies and agribusinesses share the same interest in increasing farmers' incomes: more income increases the demand for food and other products, improves employment opportunities, increases the human capital and allow for public investment in infrastructure. At the same time, trade liberalization and financial pressures have decreased government budgets leading to the privatization of government services, including those to rural communities. Consequently, some of these previously public functions (e.g. agricultural extension) are taken over by private agencies both by for-profits (including PTPNs) as well as by non-for-profits. Corporations such as Unilever have recognized the value of demonstrating socially responsible corporate behaviour, especially in the regions where they have plants and/or offices. They are eager to become engaged in

stakeholders' dialogues about issues that impact the livelihood of their staff, their clients and/or their resource base.

Despite the common interest between the private sector and NGOs collaboration is not yet common. This is caused by the differences in organizational culture of the non-for-profit sector and the for-profit sector, distrust about each other's motivation, and lack of mutual respect.

The strength of the private sector is its technical and managerial expertise, its access to private financial resources, and its eagerness to provide new services and products, and its penchant for technical innovation. Large corporations like Unilever have the ability to provide technical and managerial expertise for local enterprises such as processing industries; they can bring products and services to isolated communities, open new and distant markets for agricultural products, and may leverage venture funds.

The strengths of the NGO sector is its ability to reach marginal groups and its ability to mobilize support (mainly from public and private charitable sources) for the interests of disadvantaged and marginalized peoples in developing countries, and its ability to organize these peoples for community purposes such as education, health care, and local infrastructure. Moreover, NGOs have the capacity to leverage development funds both from donors as well as from host country governments.

The public sector has the capacity to upscale successful pilot activities, can improve the enabling policy conditions under which the private sector is conducting their business activities, and can bring to bear important public services such as research and extension.

Much can be gained by fostering partnership between corporations, the public sector, and development oriented NGOs. Both NGOs and corporations such as Unilever share the goal to make agriculture in developing countries more productive and profitable, thereby raising the income of farmers. By sharing marketing efforts, NGOs can help reduce the marketing and transaction costs of their agribusiness collaborators.

Regarding this project, the PPP partners agree on a collaborative action plan, a PPP project. This project is to demonstrate to the smallholder and estate managers alike that (a) meeting the customer requirements is necessary and beneficial, (b) change is not to be feared, (c) it will have economic benefit (d) it is good for the community and the environment and (e) it will lead to improved international competitiveness.

As an outcome of the project, Indonesian tea farmers should be able to improve productivity and increase their net incomes through greater access to improved inputs, processing technologies, and marketing options provided through well-managed producer associations. The Indonesian tea supply chain will meet international quality standards. The Indonesia Tea Association and the Indonesia Smallholder Producers Association will be effective service providers to their members. The project aims to demonstrate the effectiveness of a public-private partnership development approach, especially in regards to improving a commodity supply chain. Lessons learned from the project will be replicable in other tea producing countries in Asia as well as for the enhancement of supply chains of other commodities.

1.3 Description of the partners and the target group ('the client') *(core business of partners, strengths and weaknesses in the PPP, partner's roles and responsibilities)*

The partnership consists of four core partners:

UNILEVER

PTPN VIII and PTPNV1

EUCORD/CERDAS

DGIS

The strength of *Unilever* is their knowledge of the international tea market, their technical knowledge about sustainable tea production and their commitment to a healthy and competitive tea sector in Indonesia. Although Unilever does have the capacity and resource to influence the management of its main suppliers (the PTPNs) it can not justify the resources necessary to support changes across the entire Indonesian supply base by reaching the many thousands of smallholder producers. It is also not in the position to leverage directly the support of the public extension services.

The strength of the *PTPNs* is their size, their existing integration with the local community, their remit and their local knowledge. Their ability to utilise these strengths is hampered by their lack of financial and technical resources.

The strength of the combination *EUCORD/CERDAS* is their ability to serve as broker among private entrepreneurs and public agencies, and their experience in project management. Their weakness is their lack of knowledge about tea production and their lack of resources.

The strength of *DGIS* is their available recourses and their commitment to the Millennium Development Goals (MDG).

The common interest of all partners is to build a competitive tea sector in Indonesia, one that can compete in an increasingly difficult and demanding global market place. The interest of Unilever is to maintain Indonesia as one of its main tea supplying countries, and help Indonesian tea producers to add value to their product. The interest of the participating tea estate companies is to improve their profitability and to help them exercise their social responsibilities vis-à-vis surrounding smallholder producers. The interest of *EUCORD/CERDAS* is to nurture a public-private partnership. It is the goal of *DGIS* to seek collaboration with the private sector, leverage their resources while contributing to the millennium development goals.

The partnership will be supported by an array of resource institutions. Some of these are sources for specific technical assistance (e.g. CARE/Indonesia, which is guided by Alterra) while others are agencies whose capacity will be strengthened during the implementation of the project (e.g. ATI, APTEHINDO, and TRI).

Collaborating institutions are:

Public:

DG Estate Crops, MoA
Provincial Service for Estate Crops West Java
Provincial Service for Estate Crops West Sumatra
Tea Research Institute (TRI) Gambung

Farmer/Trade organizations:

Indonesia Tea Association (ATI)
Smallholder Tea Producers Association (APTEHINDO)

Resources organizations:

CARE (Indonesia)/Alterra

Unilever

Tea is an important raw material for Unilever. Indonesia is one of the biggest tea producers and exporters in the world. Sustainability of tea (i.e. ensuring that tea growing contributes to farm income, has positive environmental impacts and contributes to the wellbeing of rural communities) is important both to tea growers and to Unilever. Unilever would like to enhance the sustainability of tea growing globally and is committed to enhancing the quality of their tea supply chain. This enhancement programme includes elements of food safety (HACCP), quality assurance, good manufacturing practice, and ethical and environmental performance. With that purpose in mind Unilever has been one of the main sponsors in the development of the Ethical Tea Partnership (ETP).

The ETP is based on three “core beliefs”:

- 1. Tea entrepreneurs share a responsibility for social and ethical conditions involved in sourcing the tea that is bought,*
- 2. Activities launched to improve such conditions should be non-competitive and non-political, and*
- 3. Tea processors and traders should collaborate in such activities in partnership with the tea producers*

A key element in ETP’s approach is the development of an independent monitoring mechanism that provides assurance that working standards on tea estates meet local laws and labour agreements This monitoring process approach is currently under revision to make it more robust and pertinent for the future. The two main elements of this change are the adoption of the Ethical Trading Initiative standards by the ETP and the move away from expensive professional audits of suppliers towards closer alliances with local NGO communities that can both assure and assist tea producers in meeting ETP standards.

It is Unilever’s desire that Indonesian stakeholders in the Tea sector will actively support the ETP initiative and build their knowledge around key compliance issues, through enhanced cooperation with NGO’s, labour and farmer organisations.

ETP is currently one of two tools Unilever utilises to ensure its tea supply chain meets both Corporate Social responsibility (CSR) and Ethical standards.

The other tool is Unilever’s own Sustainable Agricultural programme. Unilever is concerned about the agronomic condition under which all crops are produced and has established a set of

criteria that are designed to create sustainable agricultural production systems in the main crops Unilever purchases. One of these is tea and as the owner of 45,000 tons of tea production in East Africa, Unilever has developed these sustainable agricultural criteria in a real world production environment where they have been trialled and tested. Since 2003, these criteria have been communicated to all Unilever's tea suppliers and the industry in general.

The Unilever SA programme, combined with the implementation of ETP standards, create the basis for the tea industry in Indonesia to enable comprehensive good management practices, that will ensure an economically sound, socially acceptable and environmentally sustainable industry.

Unilever has already established a similar PPP project in Kenya with the Kenyan smallholder community, the KTDA, that is funded by a grant from the UK government (DFID). This project has been operational since early 2006.

Unilever's objective is for the Indonesian tea sector as a whole to make this journey towards improved sustainability. Unilever will provide technical and managerial expertise, and will also co-sponsor the project.

Their contribution to the proposed project is estimated at \$ 450,000.

PTPN VI and PTPN VIII

The two PTPN's are Unilever main suppliers of Indonesian tea. (circa 20,000 tons per annum) They are fully conversant with both the ETP standards and Unilever's SA guidelines but lack both the resources and technical skills to implement these standards fully. Unilever is committed to working with both suppliers to enable them to achieve the desired standards, through the provision of both technical and financial assistance. The PTPN's will make tracks of land available to test and demonstrate sustainable agricultural practices according to the Unilever GAP principles and prove the commercial viability of SA practices in enhancing the product value and reducing tea production costs. The PTPN's will then manage these areas on behalf of the project. The key purpose of these demonstrations is to prove that sustainable practices lead to commercial advantages for the producers.

Improvements can be expected to varying degrees in all the areas defined in the 10 sustainability parameters for tea (as developed by Unilever. These 10 parameters are: Soil Fertility, Soil Loss, Nutrients, Pest Management, Biodiversity, Value chain, Energy, Water, Social and Human Capital, and Local Economy.

The second contribution the PTPNs will make is actively pursue buying tea from surrounding farmers and collaborating with the project in developing quality incentives for high quality green leaf being supplied by selective farmer groups/co-operatives. In order to achieve this goal the farmers will themselves need to implement SA production practices, which is the other primary target of this project.

EUCORD and CERDAS

The institutions of the market are concerned with the efficient production and distribution of goods and services, public institutions are focused on developing policies while civil society institutions are concerned with the expression and preservation of core community values and beliefs. Experiences have shown that intermediary actors are needed that can help overcome these barriers and can link prospective partners. The purpose of EUCORD (European Co-

operative for Rural Development) is to be that actor. EUCORD is an independent organisation incorporated under Dutch co-operative law in May 2002 as the cooperative organizational structure combines characteristics of market organizations as well as civil society organizations. Its membership consists of development oriented NGOs that share EUCORD's goals of poverty alleviation and private sector development. EUCORD plays the role of broker, and also seeks – through its members - to become active partners in the partnerships they help foster.

EUCORD and its Indonesian partner NGO, CERDAS, will be charged with overall implementation of the project. They will report to the Steering Committee of the project, and DGIS according to its requirements. EUCORD's Managing Director has served as Team Leader in Indonesia and assisted with the preparation of this project.

CERDAS, an independent Indonesian NGO, was established June 19, 2001 out of a merger of three existing NGOs. CERDAS' Mission is to reduce poverty, to achieve food and economic security, and to increase economic opportunity and employment by mobilizing partnerships among stakeholders, while protecting environment and natural resources.

CERDAS is currently implementing more than 12 economic projects at 19 sites including West Java and West Sumatra.

Contact:

Mr. Tri Kuntarto, Managing Director
Center for Economic Recovery, Development and Alliance Services (CERDAS)
Plaza Niaga I, Blok B No.6
Jl. Thamrin No I
Bukit Sentul, Bogor 16810, Indonesia
Tel +62-21-8796-0981

DGIS

The other key funder for this program is the Ministry for International Co-operation (DGIS) of the Netherlands. Stated priorities of DGIS are:

- Millennium Development Goals (MDG) (Poverty alleviation, Education, Gender Equality, Child Mortality, Maternal Health, HIV/AIDS, Environment, Global Partnerships)

The DGIS contribution to the project will fund the extension of the work done by Unilever with the PTPN's to the small holder tea community, thereby enhancing market access for their products and establishing a mutually beneficial relationship with the PTPN's that does not currently exist. The key purpose of the project in this regard is to establish the value of SA practices to the smallholder community as well as the PTPN's, thereby enabling a long term sustainable economic proposition that will be self supporting after the project term is completed.

Elements of the programme to be run with the local community farmers will incorporate reproductive health care, education and HIV/AIDS prevention. Programmes in these areas are already run by Unilever in Kenya as part of its SA programme in that country and Unilever has recently received an award for its HIV programme in Kenya managed by its own tea estate company in Kenya.

1.4 The partnership decision making process

The underlying principle of this program is that of a Public-Private Partnership or PPP. PPP projects are meant to leverage the use of private resources (national and/or foreign) in development projects. Consequently PPPs are projects that combine private business interests with development goals of national governments such as the Dutch development assistance (DGIS), and the Indonesian Government. An important reference for the Indonesian development goals is the Poverty Reduction Strategy Paper (PRSP). Combining business interest with development goals helps both parties reach their objectives more efficiently. In preparation of the program a team of two persons conducted a tea sector business scan during June 2005. The team consisted of Dr. James Onsando, Agronomist, Unilever/Lipton Tea and based in Kenya, and Dr. Henk Knipscheer, Managing Director of EUCORD. The team was assisted by Mr Visvajit de Alvis, Managing Director of Lipton Tea/Indonesia, a subsidiary of Unilever/Indonesia. During a series of interviews with tea business leaders, tea sector organisations, tea sector supporting government agencies and NGOs active in the tea sector, the team investigated opportunities for setting up a sustainable livelihood programme for tea growers with Indonesian partners and using support from various fund sources, with emphasis on DGIS. Attention was given to the whole tea market chain from smallholder production to export market, to creating local development opportunities, including those for women, and to identifying development partners and their roles. Most meetings were arranged by Mr. Tri Kuntarto, M.Sc., of CERDAS, who was able to join the team frequently and provided valuable input into the program design.

During the business scan the following questions were taken into consideration:

- Which NGOs could be involved?
- How can proposed program activities be handed off to the appropriate Indonesian organisations?
- Which farmers' organisations with a stake in the tea sector development should be involved and strengthened?

The result of the investigation is the formulation of a 3-year supply chain development program that integrates multiple and simultaneous interventions at different levels.

1.5 The expected role of DGIS (including the Royal Netherlands Embassy) *(describe your expectations of what the role of DGIS should entail)*

DGIS will play the role of funding and monitoring agency. It is proposed that DGIS will assign a member of the Netherlands Embassy staff in Jakarta as one of the members of a Steering Committee. This Steering committee will consist of the 7-9 stakeholders in the Indonesian tea industry. The Steering committee will convene at least twice per annum, more if necessary. EUCORD/CERDAS being the management entity of the project will submit semi annual progress reports and workplans for approval by the Committee.

2. Contribution to Sustainable Development and Poverty Reduction

The expected results of the PPP with indicators for poverty reduction and sustainable development (economic and social development, ecological sustainability), taking into account gender issues.

2.1 Contribution to poverty reduction and sustainable development

(description of the expected results and benefits using - state and process - indicators)

Measurable results to be achieved

At the conclusion of the project the following targets will have been met:

- (1) At least 20 producers/ co-operatives under good commercial management
- (2) At least two sustainable agricultural practice demonstration sites established at estates managed/owned by the PTPN partners.
- (3) Up to 3,000 tea farmers applying improved (GAP) practices and supplying tea via the participating large estates.
- (4) 3,000 ha of the large estates under improved tea (GAP) practices
- (5) 25 % increase of household income from tea for targeted farmers (including women)
- (6) An ATI Web site supporting good agricultural practices, that is visited by at least 1000 visitors monthly
- (7) All PTPN VIII and VI managed estates compliant with ETP and Unilever SA criteria .

These proposed program objectives are consistent with the DGIS objectives. Specifically, the program will contribute to four of the eight Millennium Development Goals (MDGs):

- Poverty alleviation (MDG #1) (income and employment)
- Environmental sustainability (MDG #7) (reforestation, renewable energy, biodiversity, water, and land tenure)
- Economic development of women (MDG #3) (off-farm employment and political role)
- Develop PPPs for development (MDG #8) (Transparent business practices, access to markets and knowledge, employment)

3. The Public-Private Partnership Plan

Description of the partnership strategy, planning and activities, risks and risk control measures, phasing of the PPP activities with indicators in relation to results. Due attention should also be given to the institutional sustainability.

3.1 Concise description of the “market” and the added value of the PPP

(the ‘demand’ for the product or PPP-activities, trends in this market segment, competition)

Although Indonesia is a significant exporter of tea, it is not the only one. Indonesia exports are declining as other countries are responding better the changes in the market. One of the significant changes is the need to assure responsible production practices and production conditions along the whole tea supply chain. Unilever/Lipton Tea being closest to the customer market is the market leader. Other countries such as Kenya are already responding to the changes the market leader makes. The question is if Indonesia producers can adjust to these changes in the market by pursuing a more sustainable future tea industry.

The drive for the project has come from Unilever. The PTPNs are one of Unilevers major suppliers and are key to the viability of the project. These producers do realize the necessity to work with their largest customer on this project. This, in turn, gives the PTPNs the opportunity to add expertise to their organizations so that they can (1) produce added-value tea for the market and (2) demonstrate to surrounding smallholder tea farmers the benefits of sustainable tea production.

Unilever brings, resources and the considerable scientific and agricultural expertise developed from its own estates in Kenya and its experience with the DFID funded project with the KTDA in Kenya. The PTPNs realize that working together is a critical part of the process and is essential for long term success. ATI and APTEHINDO are associations that have the potential to facilitate such collaboration.

3.2 Overall business strategy

The target beneficiaries of the project are smallholder tea farmers and PTPN tea estate workers and their families. The project will provide new income opportunities for these farmers and improved working and living conditions for tea workers by enhancing the financial security of their employers. (PTPN’s) The project will also help private sector partners to improve the quality and efficiency of their supply thereby reducing the cost and risk of interruptions in their supply chain. Private sector partners will be encouraged to invest in new clean energy sources. Public sector agricultural service capacity and private sector services will be enhanced. Indonesia’s whole tea sector will become more competitive. Lastly the project will demonstrate that through a targeted partnership among selected private sector, public sector and civil society organisations agricultural development can be accelerated.

3.3 Institutional set-up and sustainability of results

(sustainability of results, the institutional setting during and after the partnership activities)

The overall goal of the project is to implement a PPP-based program that will make the Indonesian tea sector more competitive by increasing the efficiency and quality of their supply chain, and by enhancing the knowledge among their supply chain partners about the importance of the social, economical, agronomic and environmental conditions under which the tea is being grown, cultivated, processed and traded. This is a goal shared by the public and the private sector partners.

The following program characteristics contribute to meeting the common goals:

- Involving large and small tea growers in the regions where Unilever's main suppliers (i.e. PTPN VIII in West Java, and PTPN VI in West Sumatra) operate, and to significantly improve their efficiency of production, marketing and organisational capacity.
- Involving appropriate (non-tea) government agencies that have a stake in sustainable development (forestry and energy authorities) with the goal to explore positive interaction between these agencies and the tea estates (large and small).
- Strengthening the capacity of DG Estate crops (under the MOA) to support the Indonesia tea sector.
- Strengthening the roles of relevant tea sector associations, especially those of the Indonesian Tea Association (ATI) and the Smallholder Tea Producers Association (APTEHINDO)
- Focusing part of the attention in the program on the communities the employees of the large tea estate companies (especially women) belong to.
- Motivating large tea suppliers to enhance their behaviour of "good neighbours", to help them to develop a code of business principles that is consistent with Unilever's code, and to create opportunities that demonstrate their corporate social responsibilities.

At the end of the project the PTPNs, the ATI, APTEHINDO and the public extension services will have the capacity to promote sustainable agricultural practices. Smallholder farmer groups and APTEHINDO will have the capacity to link with PTPN and to receive premium prices for high quality leaves. TRI will have the capacity to apply and to modify the model for on going monitoring and extension purposes.

Sustainability of activities

This project is designed to become sustainable in three years. Private sector partners will then continue the project activities. This is the essence of the private sector partnership approach. Although during the implementation of the project the collaboration of the public sector will be leveraged, the continuation of the activities beyond the Life of Project (LOP) will be independent of the willingness by the public sector to continue their supportive activities.

3.4 Capacity building and transfer of knowledge

(outline and anticipated results)

Small-holder Tea Farmers and Farmer Field Schools

Farmer Field Schools (FFS) have become a key agricultural extension and innovation tool. The FFS is a participatory, interactive communication model that consists of regular meeting of farmer groups that discuss and experiment with new farming practices. The provincial Estate Crop Extension Services has introduced the FFS methodology under a current ADB project that focuses on IPM technologies (in tea). This program (IPM Smallholder Estate Crops Project, IPM-SECP) will be completed in a few months. Staff of the Extension Service was very satisfied about the results. A recent survey (2004) showed that yields had increased by an average of about 20%. Another positive result of this project is that the West Java Estate Crop Extension Service is now familiar with the FFS approach.

Under the ADB project 12 Field leaders on the provincial level (West Java) can reach 15,000 smallholder tea farmers. The twelve Provincial Field Leaders have trained 80 District Field leaders (two per district) who again have trained an equal number of “lead-farmers” or “farm-facilitators”. These 160 trainers guide the training of 700 groups of farmers (each group counts about 25 farmers). Annually these farmer groups convene about twenty times. During these sessions the group members exchange experience and decide on future actions/experiments. The training activities have been limited to IPM technologies and could be expanded to include Integrated Nutrient Management (soil fertility) and market information and management training. The training activities were conducted by the public extension agency without participation of the private sector, the NGO community or the para-statals.

FFS when conducted by a combination of public, private and NGOs are also a useful platform to bring partners from different sectors (public, private, civil society) together to define priority problems and opportunities for innovations. The methodology has been proven to bridge the gap between farmers, extension agents and researchers. FFS have also been effective in reaching female farmers. FFS groups sometimes decide to formalise their group into co-operatives in order to operate some common marketing and/or procurement tasks.

Farmer Field Schools and Demonstration Estates

As the area planted to tea in Indonesia is 44 % under smallholder management and 56 % under estate management (private or parastatal), improving the sector will only be successful if both large holdings and small holdings are involved in the Tea Supply Chain Enhancement Programme. An important element in promoting better management practices in agriculture is to be able to demonstrate this in practice. The program will therefore develop two demonstration sites on each of the two estates, i.e. two with PTPN VIII and two with PTPN VI. The reason for situating these with the estate companies is that it will be easier for them to dedicate an area to demonstrating better practice (e.g. by applying the lessons learned from the ADB programme for IPM in tea) than it would be for a smallholder organisation. The Provincial Services for Estate Crops in West Java and West Sumatra will be given a guiding role in the management of these demonstration estates, partly as a learning exercise for their own staff, and partly in order to use of them for training purposes for surrounding groups of smallholders

3.5 Partnership activities, time-bound results and time-frame of the Partnership

The project includes the following four components. Each component has its own objective. However the implementation of each objective is integrated with the implementation of the objectives of each of the other components:

Component 1:

- **Objective:** Improving profitability on smallholder tea farms and on tea estates.
- **Outputs:** 20% increase in incomes derived from tea cultivation through improved productivity/profitability and enhanced quality. Special attention will be given to establish a price incentive for high quality tea. Converting low productivity tea plots to alternative tree crops. Develop training materials.
- **Activity 1.A: *Developing best practices.*** Presently tea is being cultivated by smallholders without application of fertilisers. On the other side, the large estate companies may apply too many inputs on their land. Available production technology will allow farmers in West Java and West Sumatra to achieve improved yields of tea that will bring higher prices in the marketplace as a result of enhanced quality. Project

staff will convene and design a program of demonstration and training designed to build demand among client farmers for improved market-linked production inputs. Where possible, active collaboration with the public and non-public agricultural extension services will be pursued. Recommended practices will be demonstrated on the large estates (see Activity 1.D) as well as within farmer groups. Training material will be developed. Farm trainers will be identified and trained. The project will modify the IPM Farmer Field School approach and apply the methodology to soil nutrient management and marketing strategies including meeting product safety standards such as GAP, GMP, and HACCP.

- Activity 1. B: Provide access to market information. Market information is presently not available for individual farmers. Price incentives for higher quality tealeaves are not being passed on to farmers. Leaders of co-operatives will be trained to become provider of services including market services. The project will help farmers to gain access to market information and other information that will allow them to make informed decisions.
- Activity 1 C: Establishment of demonstration estate on West Java and West Sumatra. Demonstration estates will play an important role in both the training programme for tea estate agronomists and smallholder farmer field schools. IPM practices from the ADB programme will be implemented, along with pruning demonstrations, fertiliser applications, planting of high yielding clones, better practices to avoid top soil losses etc. The demonstration estates will become a show case for the new found energy and pride in the Indonesian tea sector. DG Estate Crops, MOA, Jakarta, will become the patron of the demonstration estates.

Component 2:

- Objective: Re-build up tea producers associations (co-operatives).
- Outputs: At least 3,000 farming families involved in tea cultivation linked to associations/co-operatives. More than 20 producer's associations/co-operatives and at least 50 credit group formed and trained. Develop training materials.
- Activity 2.A: Producers associations identified, formed and trained. The project will provide leadership training and technical assistance to re-build producer associations. Their services to the members will enable farmers to produce increasing quantities of high quality tea. Associations will become self-reliant through the services and products they provide to their members. By the end of the project, project-assisted associations/co-operatives will be able to access markets, inputs, and information in service to their members. The project will conduct training workshops and prepare client-friendly training materials. Workshops will be comprehensive, building client managerial as well as technical skills. By the end of the project, participant association/co-operative leaders will be expected to:
 1. Understand best practices for production of high yields of high-quality tea that brings best prices in the market;
 2. Be fully trained in management of the association/co-operatives and be able to provide transparent leadership
 3. Be capable of negotiating on behalf of the members with (a) input providers and (b) buyers of fresh leaves;
 4. Understand the terms and conditions of co-operative contracts and be able to explain these to other farmers (transparency of management).

Component 3:

- **Objective:** Contribute to environmental sustainability¹.
- **Outputs:** Five hundred ha replanted with tea or alternative perennials.
- **Activity 3 A:** *Promote replanting of bare lots with high yielding tea clones or alternative perennials.* ICRAF (International Centre of Research in Agro-Forestry) in collaboration with TRI has identified a number of alternative perennials that will provide an income for smallholders who wish to diversify from tea into other crops. Such perennials include *parkia speciosa*, *paraserianthes* and *maesopsis*. The first two species are nitrogen fixing tree crops. All are relative short duration tree crop species that have excellent soil nutrient characteristics and good income potential.

Component 4:

- **Objective:** Strengthen Farmer Organisations
- **Outputs:** Two strong civil society organisations providing valuable services to their members
- **Activity 4.A:** *Strengthen the Indonesian Tea Association (ATI).* ATI is presently a weak organisation that provides limited services to their members. During the project ATI staff will be trained to provide the following services:
 - (1) Providing up to date market information
 - (2) Promoting good business management principles
 - (3) Promoting information regarding sustainable agriculture practices (e.g. ANNEX 3)
 - (4) Maintaining an excellent Web site, i.e. one that will be a major source for information regarding the growth opportunities in the Indonesian tea sector.
 - (5) Facilitating the conduct of environmental self-assessments (e.g. checking contour planting, terracing, drain conditions, gully plugs) and promotion of the application of IPM and IN (nutrient) M technologies among its members.
 - (6) Expanding traceability systems among its members as to include smallholder farmer co-operatives
- **Activity 4.B:** *Strengthen the Indonesian Smallholder Producers Association (APTEHINDO).* This organisation presently exists on paper but has no real membership basis. Through a series of workshops strategies will be developed on how to develop an interactive communication process between the (potential) members of the organisation and its leadership. Dutch farmer organisation leaders will be mobilised to share their experience in developing ground-level farmer organisations.
- **Activity 4 C:** *Strengthen the capacity of the provincial estate crop services to provide technical services to smallholder farmers.* Staff (trainers of trainers) of the provincial estate crop services will be trained in Farmer Field School methodology, technical information, and good co-operative management practices.

Component 5:

- **Objective:** Improve working and living conditions for tea workers
- **Outputs:** At least one commercial tea estate complies with Ethical Tea Partnership requirements.
- **Activity 5.A:** *Set up management training programme in PTPN VIII and PTPN VI to make management familiar with the OSHE and ethical requirements of the ETP*

¹ An element to consider under environmental impact is use of fuel and generation of electricity. There seems ample scope for improvement in this area by making use of micro- or pico-hydro schemes.

programme. Strengthening of the tea sector also requires that working conditions, contract terms and wages improve. In order for the sector to become healthier, it has to be able to compete for good employees who stay in their job for a number of years. Working with the ETP requirements will give said estates a boost and will act as an example within the sector. This pilot should be the start of building up a capacity within the sector to help the sector to comply with social/environmental audit criteria.

- *Activity 5.B: Develop at least two development pilot projects that will enhance the economic of women in the villages that are significant sources of female labour for the parastatal tea companies.* During the business scan several banks have been identified that are willing to explore and develop credit programs for women groups. The project will help selected women groups to prepare business plans around income generating activities and assist with linking these groups with credit providers.

3.6 Assessment of impacts

(description of potential negative effects of the activities, e.g. on the environment, and measures to mitigate negative effects)

This project specifically seeks to make a contribution to the protection and enhancement of the environment.

3.7 Partners' expectations, resources and investments

(addressing among others the criterion "50% contribution by private partner(s)")

See Section 4.

3.8 Responsibilities and accountability of partner(s) per activity and internal organisation

EUCORD is the project implantation entity and as such responsible for the execution of the project and achieving the objectives and deliverables. EUCORD will appoint a project leader in close consultation with Unilever/Lipton.

4. Management of the Partnership

4.1 Management structure of the partnership

A Steering Committee will be formed that will have the general oversight of the project. DGIS and Unilever will agree on the composition of a project Steering Committee. Members may include representatives from Unilever/Indonesia, Unilever/Netherlands, DGIS and/or the Netherlands Embassy in Jakarta, and other stakeholders. The Steering Committee will convene at least once every six months. EUCORD will submit 6-month reports and annual workplans (including budgets) to the Steering Committee for their review and approval.

4.2 Administration

EUCORD will prepare financial and narrative reports, to be submitted to the two key donors, DGIS and Unilever, according to the DGIS requirements, but not less than quarterly. All records of EUCORD are subject to financial audits.

During the duration of the project, Unilever will be offered an associate membership of EUCORD. This no-cost membership entitles Unilever to receive copies of EUCORD's Annual reports as well as the minutes of the Supervisory Board meetings. An associate member has no voting rights.

4.3 Progress reporting, monitoring and implementation.

The so-called NUTMON tool provides an excellent methodology for monitoring and evaluation of the smallholder portion of the project. NUTMON is basically a monitoring and accounting tool of in-flows and out-flows in farming systems with the farm household as the basic entry point. Downscaling to activity level (maize, tea, coffee, zero-grazing units) and up scaling to district or country level are also possible. The latter of course depends on the size and method of the farm household sample. Monitoring can be done at various levels of detail (from weekly for intensive vegetable systems to one-time recall for a large sample of for instance 500 farm households). Results can be presented at an individual farm household level (farm household reports) or at an aggregate level (averages and variations within a district). Over the years the model has undergone major developments and currently easy-to-use software is available for data entry and analysis.

CARE/Indonesia has applied this analytical tool with considerable success as it provides a rapid feedback on the impact of new technologies on farmer fields. This feedback can be used as input into Farmer Field Schools' discussions – much to the interest of the farmers themselves. The NUTMON model lends itself very well to the analysis of the whole farming system and the interaction between the tea component and the other (non-tea) component of the production system such as livestock, vegetable cultivation, and/or off-farm employment. In collaboration with CARE/Indonesia, Alterra/LEI and the Tea Research Institute (TRI) in Gambung, the project will apply the NUTMON model to the Indonesia tea sector – first on a pilot basis, and possibly across all project activities – subject to available resources.

The project will explore with CARE/Indonesia and Alterra/LEI if the NUTMON model is applicable for the demonstration sites at the estates a well.

Annex 1:

Plan of Implementation Year 1

1. Goals and Targets year 1

Description of the partnership goals and targets during the first year.

Targets	Year 1	Year 2	Year 3
Train 20 Producer Co-operatives	5	10	20
Establish 4 Demonstration Sites	4	4	4
3000 tea farmers trained	750	1500	3000
3000 ha under GAP	750	1500	3000
25% increase in income	5	15	25
300 ha land restored	10	100	300
1000 visitors to ATI Website	200	500	1000
One estate complies to ETP			1

2. Results year 1

Description of the results to be achieved at the end of the first year and the indicators to measure/assess the impact of related activities .

Key Project Targets	Year 1	Impact	Revenues
3000 tea farmers trained	750 Households	\$ 112/ HH	\$ 84,000
3000 ha under GAP	750 Hectares	\$ 77 per ha	\$ 57,000
20 producers associations	20 business plans		
ATI Website	New design tested		
Demo Sites	4 sites completed		
Restoration eroded estates	100 ha identified		

3. Activities year 1

Description of the partnership activities during the first year.

See Annex 4

4. Means year 1

Description of the means needed during the first year, including a detailed result-based budget.

ANNEX 2: NUTMON

What is NUTMON

NUTMON is an integrated, multi-disciplinary methodology which targets different actors in the process of managing natural resources in general and soil nutrients in particular.

With the NUTMON methodology farmers and researchers jointly analyse the environmental and financial sustainability of tropical farming systems.

Participatory research techniques such as resource flow mapping, matrix ranking and trend analysis are used to obtain the farmers perspective. Next to this a quantitative analysis is carried out which generates import indicators such as nutrient flows, nutrient balances, cash flows, gross margins and farm income. Both the qualitative and quantitative analysis are then used to improve or design new technologies which tackle soil fertility management problems and which can help to increase the financial performance of the farm.

The NUTMON approach has been and is being implemented in research and development projects addressing soil fertility management in situations of both nutrient depletion and nutrient accumulation. Currently we backstop the use of the NUTMON Toolbox in the following countries: Several sites in China, Indonesia, Thailand, Vietnam, Burkina Faso, Ethiopia, Ghana, Kenya, Mali and Uganda.

An overview of the current features can be found on the web site: www.nutmon.org

ANNEX 4: Unilever's Sustainable Agricultural Indicators

The Unilever approach to agricultural sustainability ("existing scope") is based on work in ten areas:

1. Soil health,
2. Soil loss,
3. Nutrients,
4. Pest management,
5. Biodiversity,
6. Farm economics,
7. Water,
8. Energy,
9. Social capital and
10. Local economy.

In order to keep focus in the various individual projects that are foreseen, a common set of indicators will be used throughout the Sustainable Agriculture projects. A working party has selected to following (groups of) indicators, based on the outputs of the Sustainable Agriculture workshop in April 1998 in Rotterdam organised by Unilever.

The choice of indicators reflects the fact that making agriculture sustainable should focus on the physical aspects first: agriculture must be sustainable from an ecological point of view. The other elements of Sustainable Development, the social and economic ones, can only follow if this requirement has been met.

Local situations and the choice for specific crops will make it necessary to give local definitions to some of the indicators (e.g. beneficial (micro) organisms in soil).

1. Soil fertility/health

Soil is fundamental to agricultural systems, and a rich soil ecosystem contributes to crop and livestock performance. Sustainable agriculture practices can improve beneficial components of the soil's ecosystem.

- 1.1. Number of beneficial organisms (e.g. earth worms per square meter)
- 1.2. Number of predatory mites
- 1.3. Number of beneficial micro-organisms (e.g. Rhizobium for peas)
- 1.4. Soil organic carbon (measure of healthy soil structure)

2. Soil loss

Soil eroded by water and wind can lose both structure and organic matter, so diminishing the assets of an agricultural system. Sustainable agriculture practices can reduce soil erosion.

- 2.1. Soil cover index (proportion of time soil is covered with crop; protects against leaching and erosion, promotes water binding)
- 2.2. Soil erosion (loss of topsoil in percentage per annum or in t/ha/annum)

3. Nutrients

Crops and livestock need a balance of nutrients. Some of these can be created locally (e.g. nitrogen), and some must be imported. Nutrients are lost through cropping, erosion and emissions to the air. Sustainable agriculture practices can enhance locally produced nutrients and reduce losses.

- 3.1. Amount of inorganic N/P/K applied (per ha or per ton of product)

- 3.2. Proportion of N fixed on site/imported
- 3.3. Balance of N/P/K over crop rotations
- 3.4. Emissions of N-compounds to air

4. Pest management

When pesticides are applied to crops or livestock, a small but significant proportion can escape to water and air, or accumulate in foods, thus affecting human health and ecosystems. Sustainable agriculture practices can substitute natural controls for some pesticides, so reducing dependence on externally introduced substances.

- 4.1. Amount of pesticides (active ingredient) applied (per ha or per ton of product)
- 4.2. Type applied (profiling, positive list, weighting factor)

5. Biodiversity

Agriculture has shaped most ecosystems in the world, and biodiversity can be improved or reduced by agricultural practices. Some biodiversity is highly beneficial for agriculture. Sustainable agriculture practices can improve biodiversity - both by 'greening the middle' of fields as well as 'greening the edge'.

- 5.1. Level of biodiversity on site:
 - 5.1.1. Number of species (e.g. birds, butterflies)
 - 5.1.2. Farm landscape
 - 5.1.3. Habitat for natural predator systems (e.g. hedgerows, ponds, non-cropped areas)
- 5.2. Level of biodiversity off-site
 - 5.2.1. Cross boundary effects

6. Product value

Product value is a measure of the desired outputs of an agricultural system. Sustainable agriculture practices should be able to maintain or improve product value.

- 6.1. Total value of produce per ha
- 6.2. Yield of target product in tons per ha
- 6.3. Conformance to quality specifications:
 - 6.3.1. Nutritional value, including minerals
 - 6.3.2. Pesticide residues
 - 6.3.3. Foreign bodies
 - 6.3.4. Other
- 6.4. Ratio of solid waste re-used/recycled over solid waste disposed to landfill

7. Energy

Although the energy of sunlight is a fundamental input to agriculture, the energy balance of agricultural systems depends on the additional energy supplied from non-renewable sources. Sustainable agriculture practices can improve the energy balance and ensure that it remains positive - there is more energy coming out than going in.

- 7.1. Balance: total energy input/total energy output, including transport where relevant (Agriculture is a process, which should trap photovoltaic energy through natural systems; it must have a positive energy balance)
- 7.2. Ratio renewable over non-renewable energy inputs
- 7.3. Emissions to air (greenhouse and pollutant gases)

8. Water

Some agricultural systems make use of irrigation water, others pollute or contaminate ground or surface water with pesticides, nutrients or soil. Sustainable agriculture practices can make targeted use of any inputs, and so reduce losses.

- 8.1. Amount of water used per ha or ton of product (irrigation)
- 8.2. Leaching and runoff of pesticides to surface and ground water
- 8.3. Leaching and runoff of N/P/K to surface and ground water (nutrients)

9. Social/human capital

The challenge of sustainably using natural resources is fundamentally a social one. It requires collective action, the sharing of new knowledge, and continuous innovation. Sustainable agriculture practices can improve both social and human capital in order to ensure normal outputs. The prime responsibility for this should remain with the local community, leading to realistic and actionable targets.

- 9.1. Group dynamics/organisational density (farmer groups)
- 9.2. (Rural) community awareness of relevance and benefits of sustainable practices/connectivity to society at large
- 9.3. Rate of innovation

10. Local economy

Agricultural inputs (goods, labour, services) can be sourced from many places, but when they come from the local economy, the expenditure helps to sustain local businesses and livelihoods.

Sustainable agriculture practices can help to make the best use of local and available resources in order to increase efficiency.

- 10.1. Amount of money/profit spent reinvested locally
- 10.2. Percentage of goods/labour/services sourced locally
- 10.3. Employment level in local community